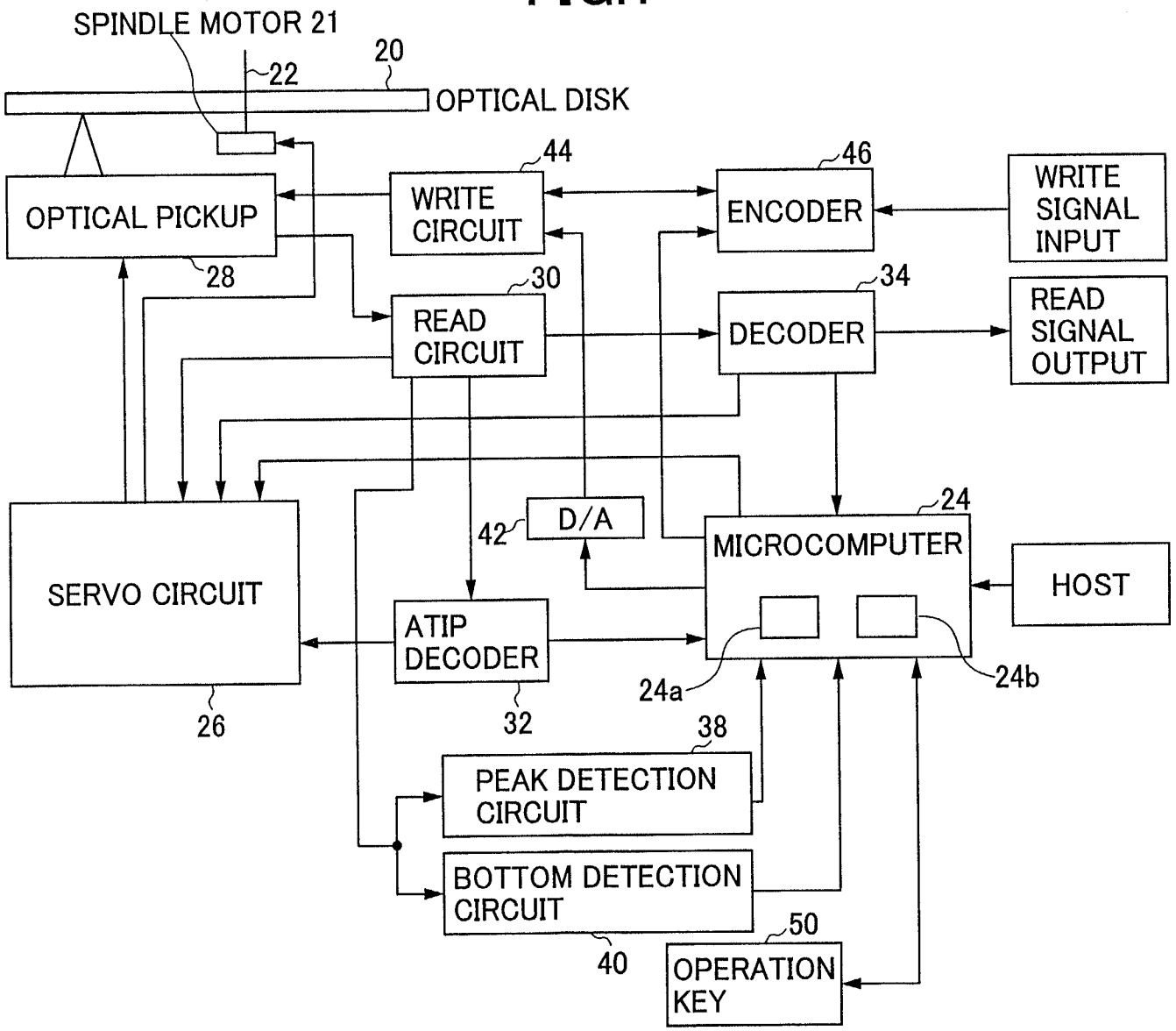
FIG.1


SPINDLE MOTOR 21
22
20
OPTICAL DISK
OPTICAL PICKUP
28
WRITE CIRCUIT
44
ENCODER
46
WRITE SIGNAL INPUT
READ CIRCUIT
30
DECODER
34
READ SIGNAL OUTPUT
D/A
42
MICROCOMPUTER
24
HOST
SERVO CIRCUIT
ATIP DECODER
32
26
24a
24b
38
PEAK DETECTION CIRCUIT
BOTTOM DETECTION CIRCUIT
40
50
OPERATION KEY

20220 6524801

FIG.2

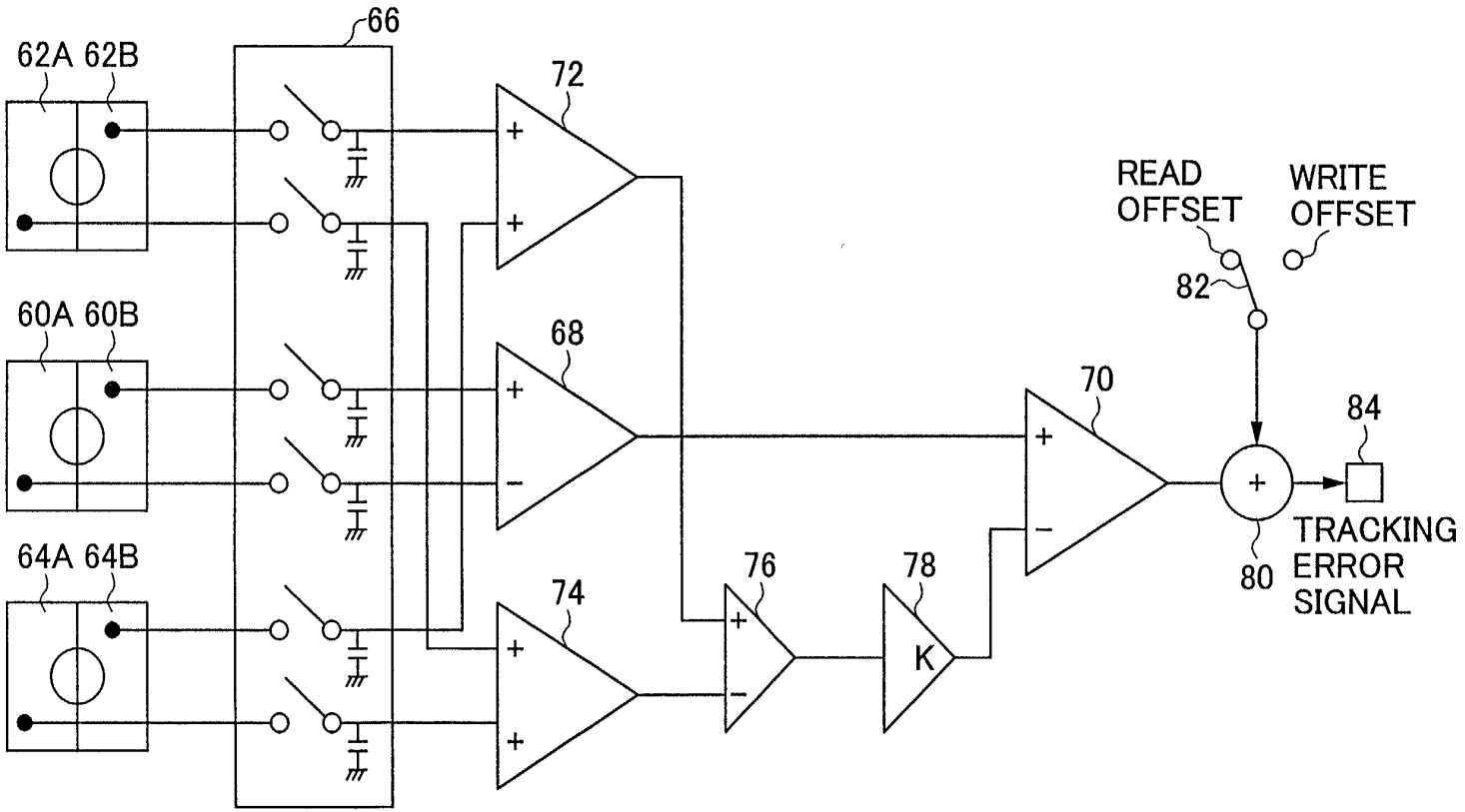


FIG.3

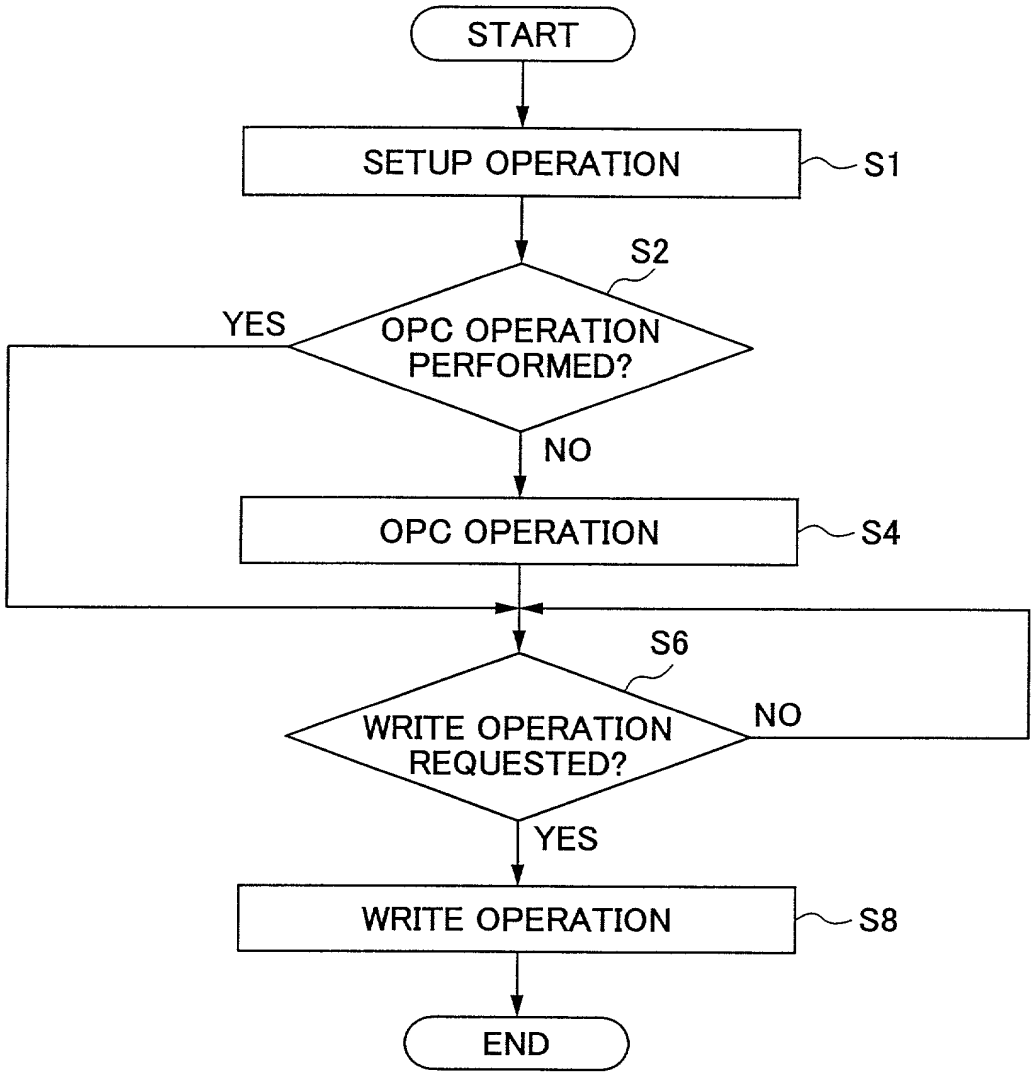

START
SETUP OPERATION
S1
S2
OPC OPERATION PERFORMED?
YES
NO
OPC OPERATION
S4
S6
WRITE OPERATION REQUESTED?
NO
YES
WRITE OPERATION
S8
END

FIG.4

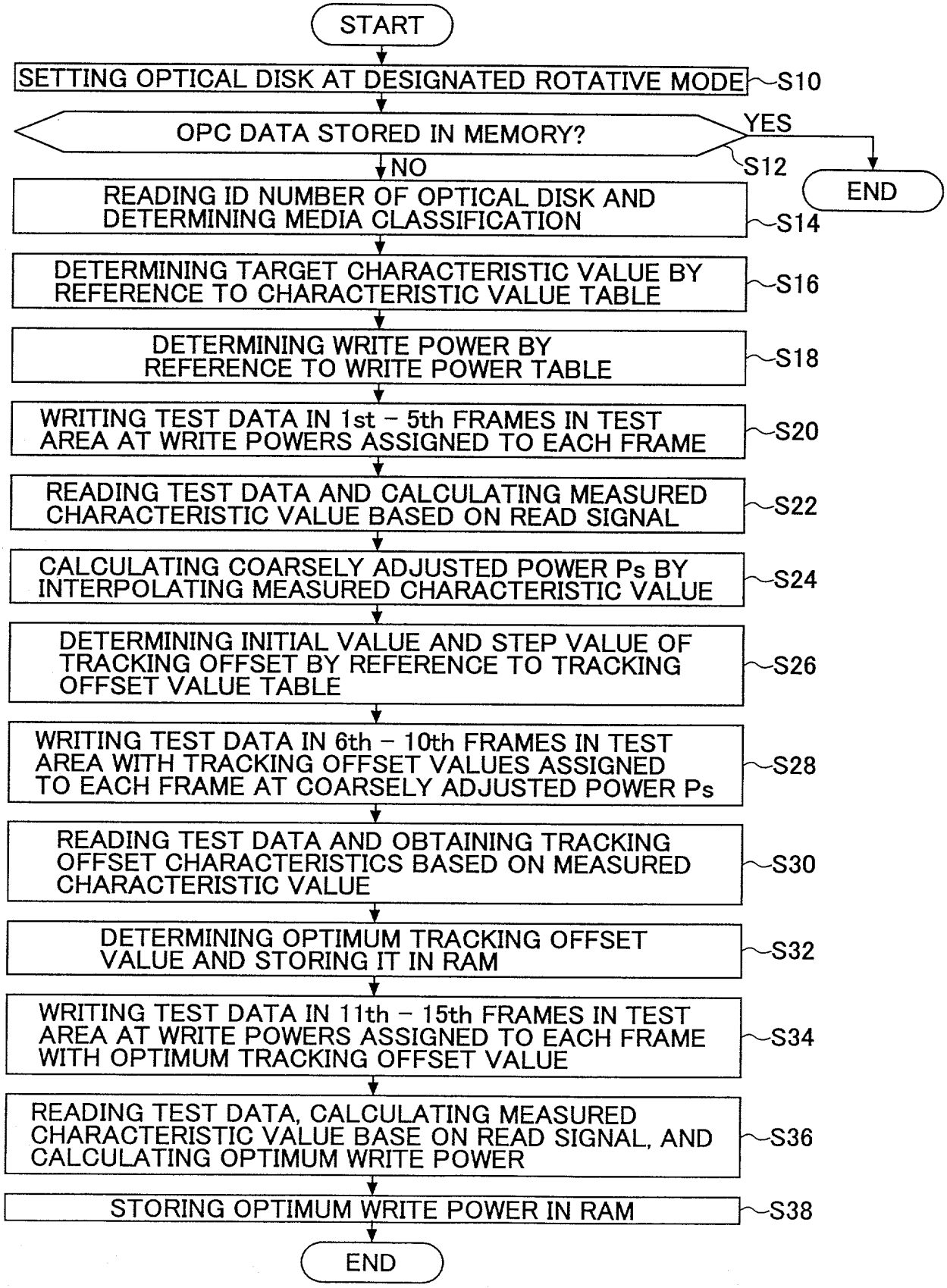

START
SETTING OPTICAL DISK AT DESIGNATED ROTATIVE MODE
S10
OPC DATA STORED IN MEMORY?
YES
S12
END
NO
READING ID NUMBER OF OPTICAL DISK AND DETERMINING MEDIA CLASSIFICATION
S14
DETERMINING TARGET CHARACTERISTIC VALUE BY REFERENCE TO CHARACTERISTIC VALUE TABLE
S16
DETERMINING WRITE POWER BY REFERENCE TO WRITE POWER TABLE
S18
WRITING TEST DATA IN 1st – 5th FRAMES IN TEST AREA AT WRITE POWERS ASSIGNED TO EACH FRAME
S20
READING TEST DATA AND CALCULATING MEASURED CHARACTERISTIC VALUE BASED ON READ SIGNAL
S22
CALCULATING COARSELY ADJUSTED POWER Ps BY INTERPOLATING MEASURED CHARACTERISTIC VALUE
S24
DETERMINING INITIAL VALUE AND STEP VALUE OF TRACKING OFFSET BY REFERENCE TO TRACKING OFFSET VALUE TABLE
S26
WRITING TEST DATA IN 6th – 10th FRAMES IN TEST AREA WITH TRACKING OFFSET VALUES ASSIGNED TO EACH FRAME AT COARSELY ADJUSTED POWER Ps
S28
READING TEST DATA AND OBTAINING TRACKING OFFSET CHARACTERISTICS BASED ON MEASURED CHARACTERISTIC VALUE
S30
DETERMINING OPTIMUM TRACKING OFFSET VALUE AND STORING IT IN RAM
S32
WRITING TEST DATA IN 11th – 15th FRAMES IN TEST AREA AT WRITE POWERS ASSIGNED TO EACH FRAME WITH OPTIMUM TRACKING OFFSET VALUE
S34
READING TEST DATA, CALCULATING MEASURED CHARACTERISTIC VALUE BASE ON READ SIGNAL, AND CALCULATING OPTIMUM WRITE POWER
S36
STORING OPTIMUM WRITE POWER IN RAM
S38
END

FIG.5

CHARACTERISTIC VALUE TABLE

DISK ID NUMBER	ROTATIVE MODE	TARGET CHARACTERISTIC VALUE
D1	SINGLE SPEED	β 0
	DOUBLE SPEED	β 1
	4 TIMES SPEED	β 2
	6 TIMES SPEED	β 3
	8 TIMES SPEED	β 4
	12 TIMES SPEED	β 5
	16 TIMES SPEED	β 6
D2	SINGLE SPEED	β 7
	DOUBLE SPEED	β 8
	4 TIMES SPEED	β 9
	6 TIMES SPEED	β 10
	8 TIMES SPEED	β 11
	12 TIMES SPEED	β 12
	16 TIMES SPEED	β 13
⋮	⋮	⋮
⋮	⋮	⋮

FIG.6

WRITE POWER TABLE

ROTATIVE MODE	INITIAL WRITE POWER	SETP
SINGLE SPEED	Pstt1	Pstp1
DOUBLE SPEED	Pstt2	Pstp2
4 TIMES SPEED	Pstt4	Pstp4
6 TIMES SPEED	Pstt6	Pstp6
8 TIMES SPEED	Pstt8	Pstp8
12 TIMES SPEED	Pstt12	Pstp12
16 TIMES SPEED	Pstt16	Pstp16

FIG. 7

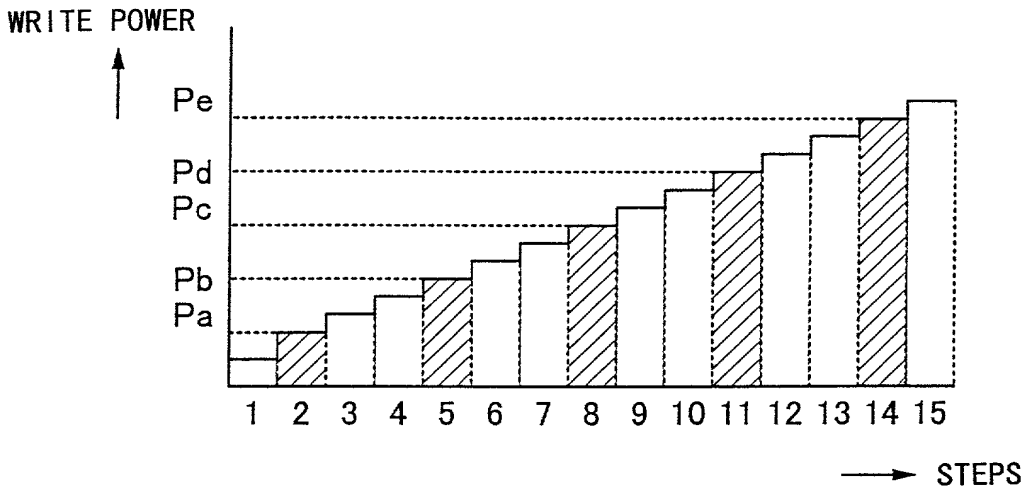

WRITE POWER
Pe
Pd
Pc
Pb
Pa
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
STEPS

FIG. 8

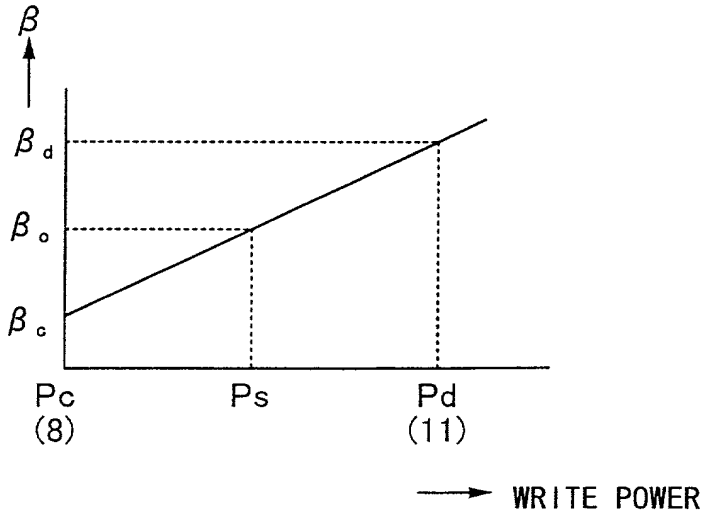

β
βd
βo
βc
Pc
(8)
Ps
Pd
(11)
WRITE POWER

FIG. 9

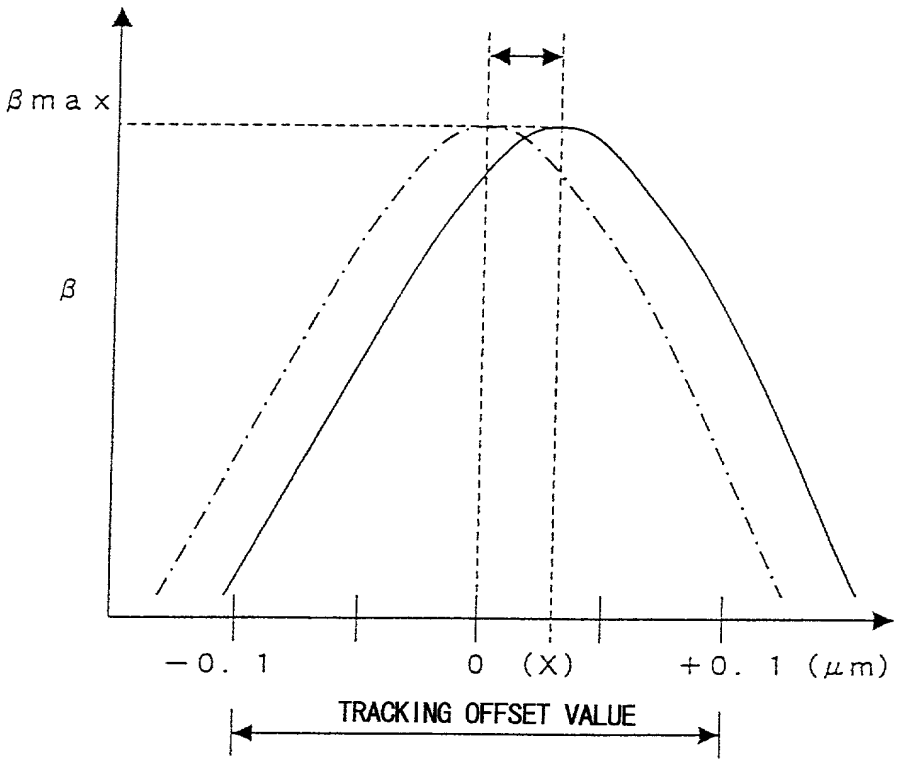


FIG. 10

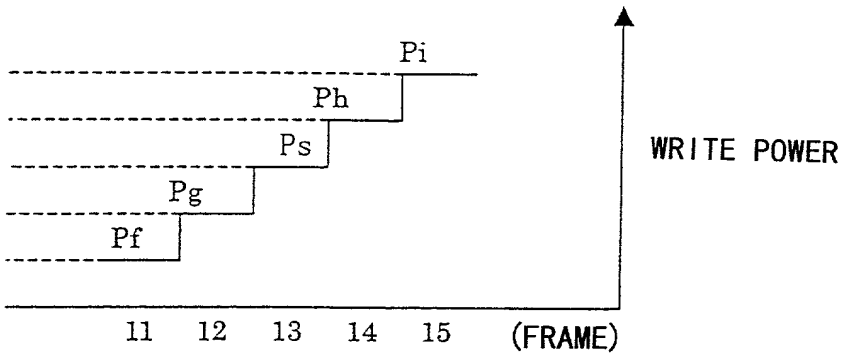


FIG. 11

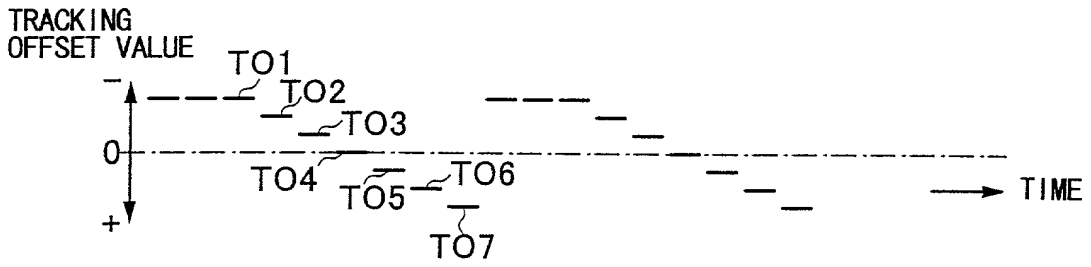

TRACKING
OFFSET VALUE
TO1
TO2
TO3
0
TO4
TO5
TO6
TO7
TIME
−
+

FIG. 12

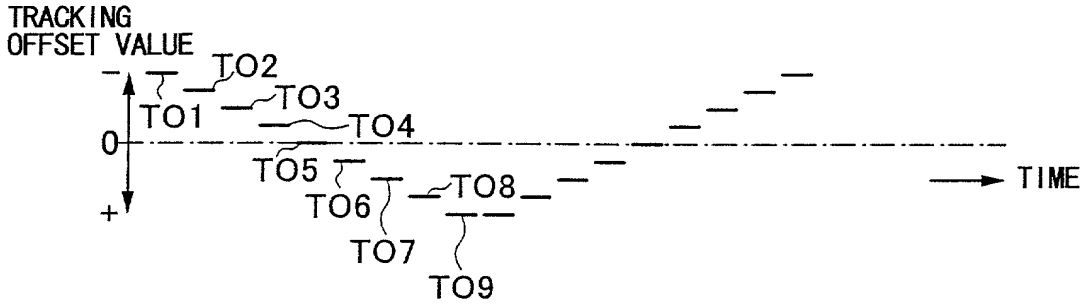

TRACKING
OFFSET VALUE
TO1
TO2
TO3
TO4
0
TO5
TO6
TO7
TO8
TO9
TIME
−
+

FIG. 13

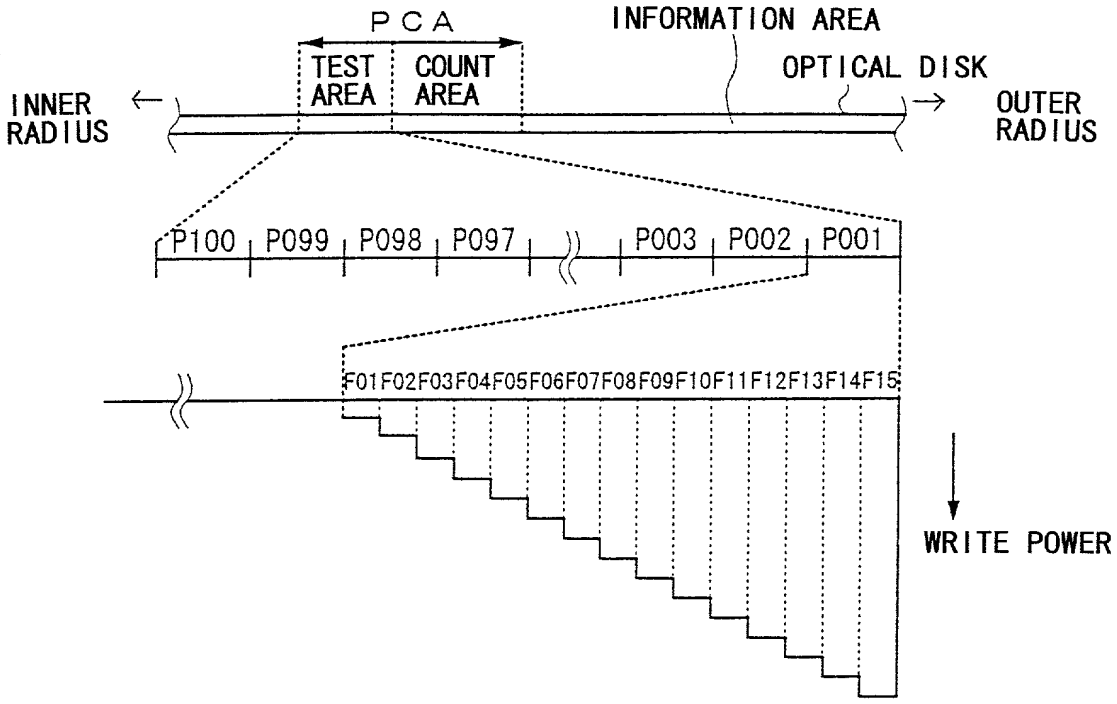

PCA
TEST AREA
COUNT AREA
INFORMATION AREA
OPTICAL DISK
INNER RADIUS
OUTER RADIUS
P100
P099
P098
P097
P003
P002
P001
F01F02F03F04F05F06F07F08F09F10F11F12F13F14F15
WRITE POWER

FIG. 14

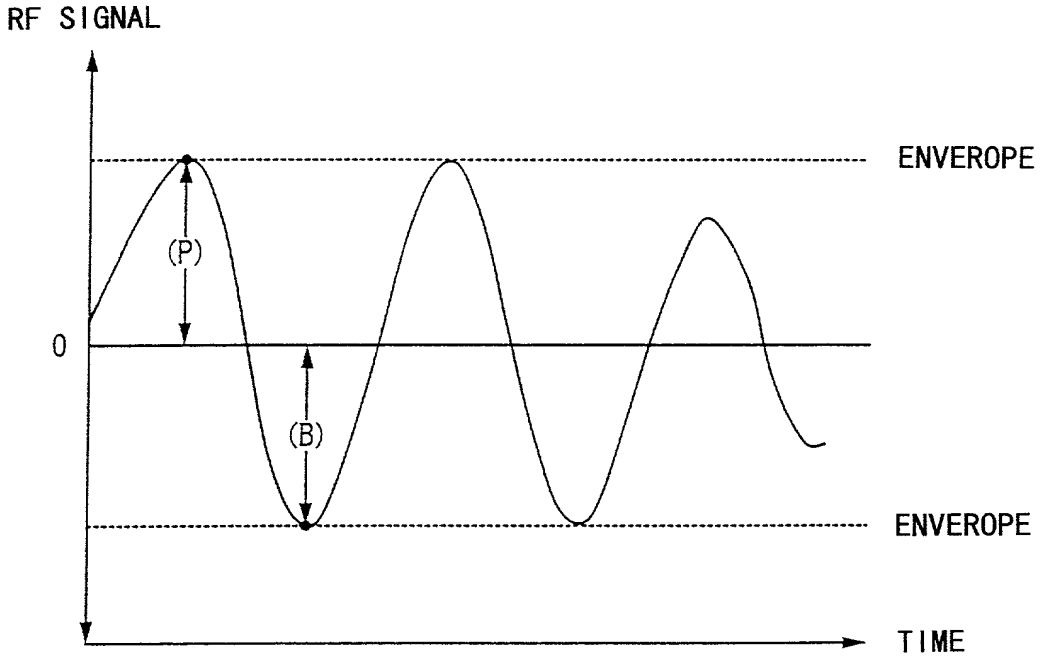


FIG. 15

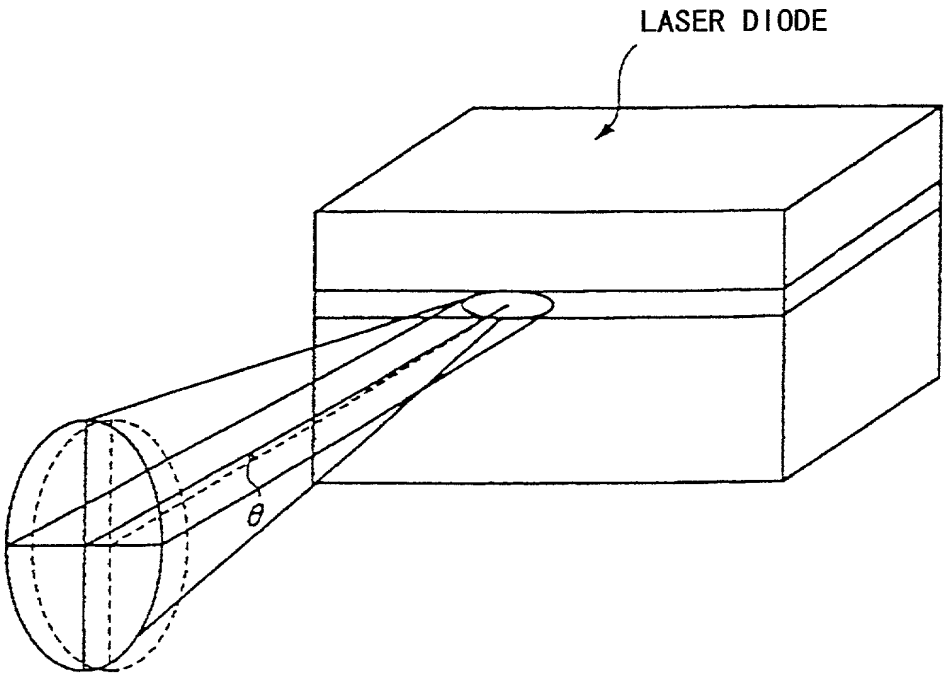
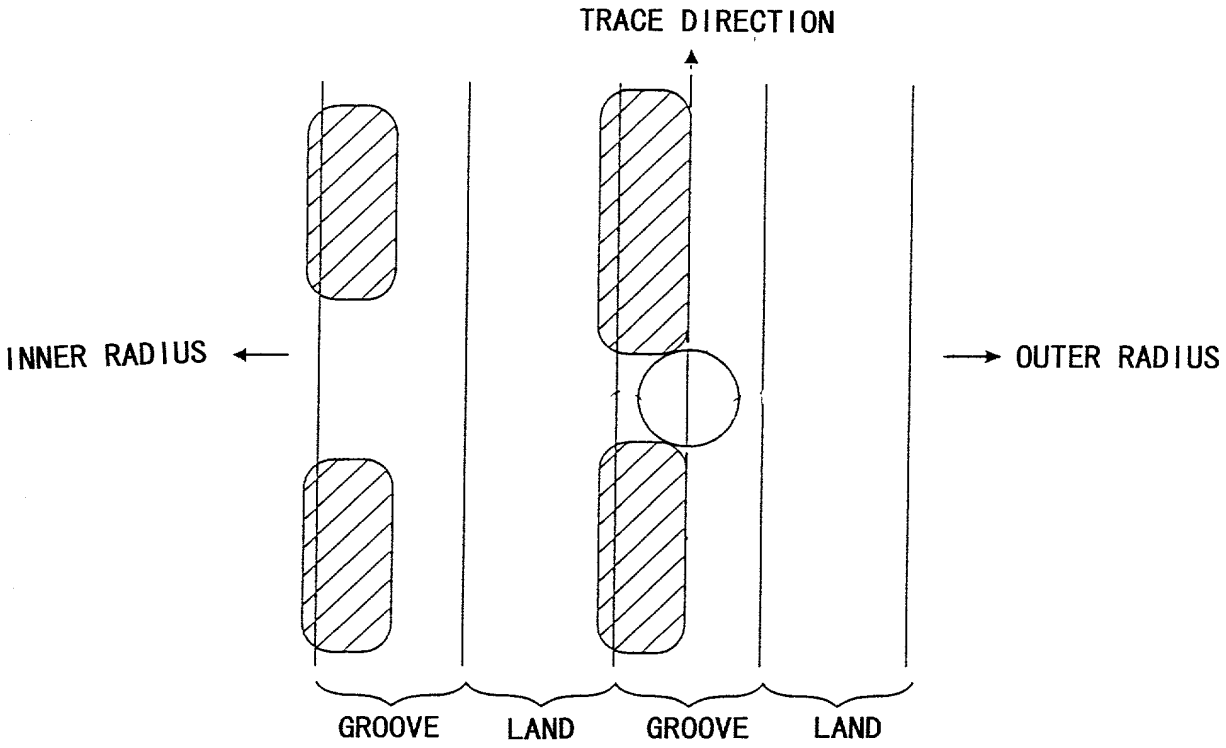


FIG. 16


TRACE DIRECTION
INNER RADIUS
OUTER RADIUS
GROOVE
LAND
GROOVE
LAND

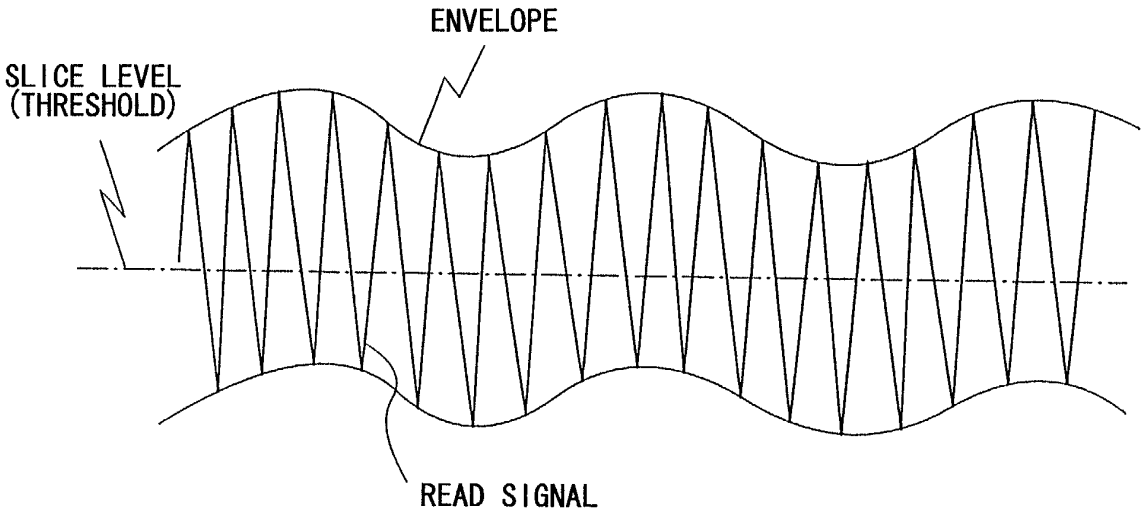



FIG. 17